

Operating Instructions

Horn

> 8492/111



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2 General information

2.1 Manufacturer

R. STAHL Schaltgeräte GmbH
Am Bahnhof 30
D-74638 Waldenburg, Germany.

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Internet: www.stahl.de

2.2 Information about the operating instructions

ID-NO.: 8492601300
Publication Number: S-BA-8492-00-en-01/2006

We reserve the right to make technical changes without notice.

3 General safety instructions

3.1 Safety instructions for installation and operating personnel

The operating instructions contain basic safety instructions to be followed during installation, operation and maintenance. Not following the instruction can be hazardous to personnel, equipment and the environment.

⚠ WARNING!

Unauthorised use of the device is hazardous!

- ▷ Injuries and damage may be the result.
- ▶ Connection, installation, commissioning, operation and maintenance may only be performed by authorised personnel suitably trained for this purpose.

Before connection/operation:

- ▶ Read the operating instructions.
- ▶ Properly train the installation and operating personnel.
- ▶ Ensure that the contents of the operating instructions are fully understood by the relevant personnel.
- ▶ The national installation and assembly regulations apply.
(e.g. EN 60079-14):

When operating the devices:

- ▶ Ensure that the operating instructions are available where the device is used.
- ▶ Follow the safety instructions.
- ▶ Follow national safety and accident prevention regulations.
- ▶ Only operate the devices in accordance with their performance data.
- ▶ Interconnecting several active devices in an intrinsically safe circuit may result in other safety values which jeopardise intrinsically safety.
- ▶ Maintenance and repair work not described in the operating instructions may not be performed without prior approval from the manufacturer.
- ▶ Damage can compromise and even neutralise the explosion protection.
- ▶ Modifications and alterations to the device that impair its explosion protection are not permitted.
- ▶ Devices may only be installed and operated when undamaged, dry and clean.

If you have questions:

- ▶ Contact the manufacturer.

3.2 Warnings

Warnings are indicated in these operating instructions using the following format:






⚠ WARNING!

Source and type of hazard!

- ▷ Possible consequences.
- ▶ Action to take to prevent the hazard.

Warnings are always indicated by the signal word "WARNING" and may also be indicated by the hazard symbol.

3.3 Symbols used

	Prompt for action; describes the tasks to be performed by the user.
	Reaction symbol; describes the results of or reactions to actions.
	List
	Describes instructions and recommendations.
	Danger, energised parts!

4 Intended field of application

The horn 8492 is intended for use as a warning device in explosive gas atmospheres.

The equipment may be used in zones 0, 1 and 2 with flammable gases and vapours with apparatus groups IIA, IIB & IIC and with temperature classes T1, T2, T3 and T4.

The horn may be operated in Zones 0, 1 and 2 if it is powered via related equipment such as safety barriers or galvanic isolator.

The equipment is only certified for use in ambient temperatures in the range - 40°C to + 60°C and should not be used outside this range.

The equipment has not been assessed as a safety-related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).

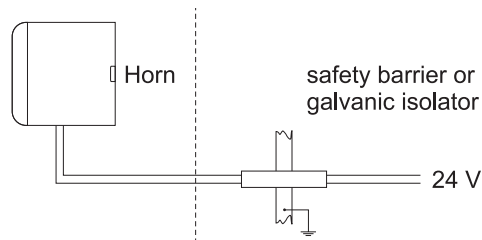
Installation of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice. Repair of this equipment shall only be carried out by the manufacturer or in accordance with the applicable code of practice.

The certification of this equipment relies on the following materials used in its construction:

- X Enclosure: ABS Plastic
- X If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.
- X "Aggressive substances" - e.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.
- X "Suitable precautions" - e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals.

5 Technical data

Explosion protection	Ⓢ II 1 G EEx ia IIC, T4* * T4 at + 60 °C						
Certifications	SIRA 05 ATEX 2270X**						
Volume	105 dB(A) at a distance of 1 m; adjustable						
Rated operating voltage U_{in}	10 V ... 28 V						
Rated operating current I_{in}	25 mA typical value, in the case of 24 V power supply via a 28 V safety barrier, 300 Ω						
Electromagnetic compatibility	in accordance with 89/336/EEC						
Safety values	U_i : 28 V I_i : 93 mA P_i : 660 mW C_i : 0 L_i : 0						
Installation	Can be operated via any certified safety barrier or galvanic isolator whose output parameters do not exceed the following values: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>U_0</th> <th>I_0</th> <th>P_0</th> </tr> </thead> <tbody> <tr> <td>28 V DC</td> <td>93 mA, DC</td> <td>660 mW</td> </tr> </tbody> </table>	U_0	I_0	P_0	28 V DC	93 mA, DC	660 mW
U_0	I_0	P_0					
28 V DC	93 mA, DC	660 mW					
Housing material	Plastic: ABS						
Ambient conditions	- 40 °C ... + 60 °C						
Cable entry point	M 20 x 1.5						
Type of connection	Connection terminals for 0.5 mm ² ... 2.5 mm ²						

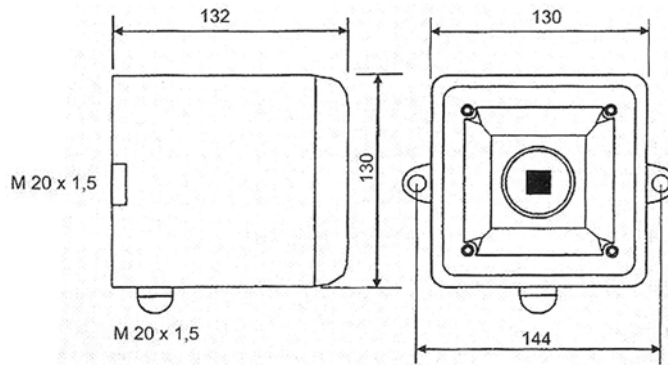


** SPECIAL CONDITIONS FOR SAFE USE

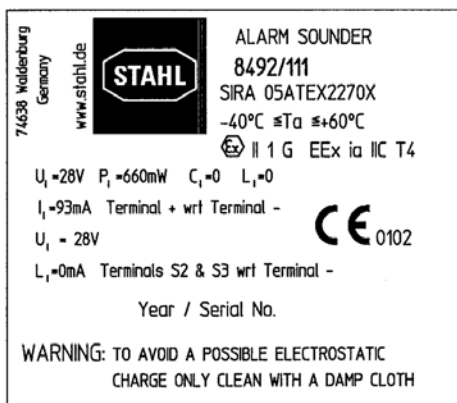
(as stated on the EC Type Examination Certificate SIRA 05ATEX2270X)

- X The equipment shall only be supplied via Terminals + w.r.t. Terminals - from a barrier having a maximum open circuit voltage U_0 that is < 28 V and a maximum short circuit current I_0 that is < 93 mA, where I_0 is resistively limited. The barrier shall be ATEX certified by a notified body.
- X The equipment shall not be directly installed in any process where its enclosure might be statically charged by the rapid flow of a non-conductive media.
- X The equipment has an ingress protection rating of IP66; however, if it has been supplied without a cable entry device, then the user shall ensure that the device that is fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better.
- X The total capacitance connected to terminals + wrt - (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83nF.

Dimension drawings



Typelabel



6 Transportation and storage

Transport

- ▶ Free of vibration in original carton, do not drop, handle carefully.

Storage

- ▶ Store dry in original packaging

7 Functional description

The horns 8492/111 are intended for use as warning devices in hazardous areas.

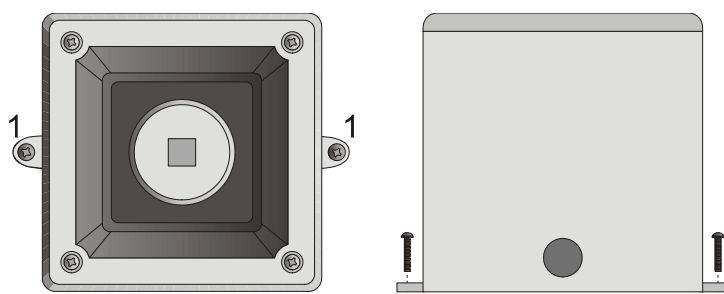
They feature 49 different signal sequences which can be selected by internal DIP switches. Three different signal sequences per DIP switch setting can be selected by means of an external circuit.

Several horns can be operated in parallel. The tone sequences are synchronised by means of an internal, crystal-controlled oscillator.

The volume can be adjusted steplessly.

The EC Type Examination Certificate allows parallel operation of up to three horns with a barrier or isolator. In the case of connection of two parallel-connected horns, the sound power output is reduced by 3 dB. Three horns may be connected to a common power supply only if the full supply voltage is available.

8 Assembly

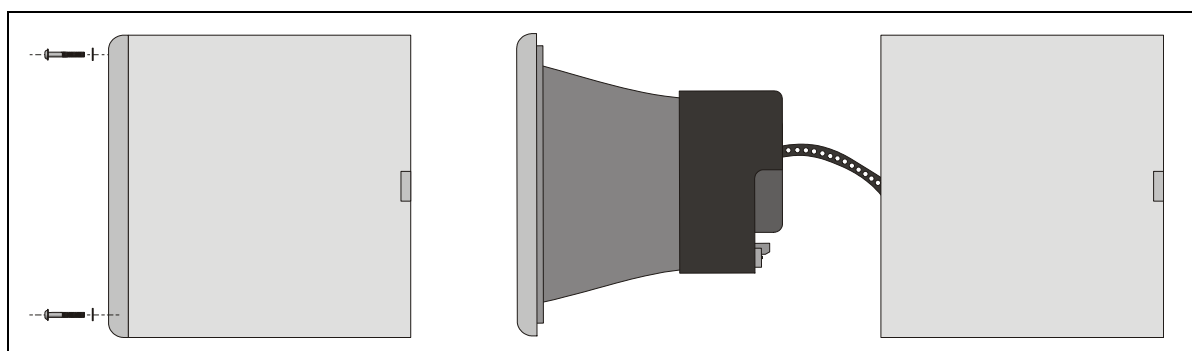


- ▶ Attach the horn to the wall with two screws (not included in the scope of delivery); use dowels if necessary.



Attach the horn so that it cannot be used as a climbing aid!

Installation of the cable entries



Front-panel, horn element and electronic are attached to the horn housing with a plastic strip.

- ▶ Undo the cross-head screws and unscrew them. Do not lose the washers.
- ▶ Remove the front panel with horn element and electronic.
- ▶ Insert the cable entry M 20 x 1.5 (not included in the scope of delivery).

9 Installation

The horns 8492/111 must be operated via safety barriers or galvanic isolators whose output parameters do not exceed the following values:

U_0 : 28 V, DC
 I_0 : 93 mA, DC
 P_0 : 660 mW

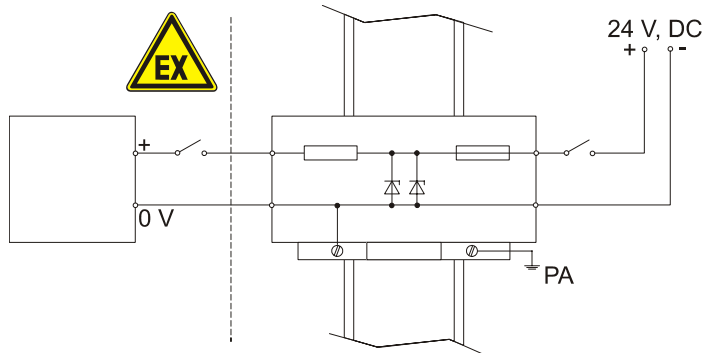
Cable parameters

⚠ WARNING

- ▶ The maximum permitted cable parameters are as specified on the certificate of the Zener barrier or galvanic isolator that has been selected for the installation.

Installation with safety barriers

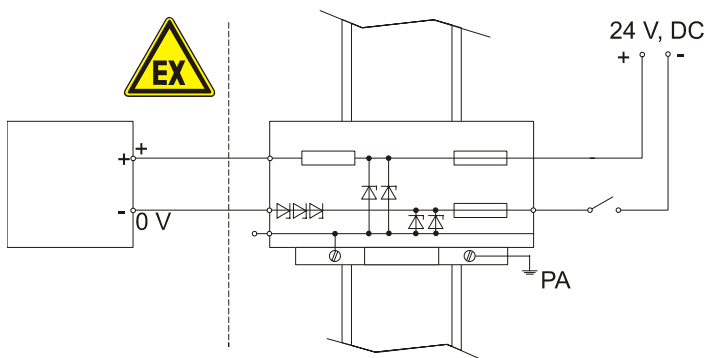
Circuit for the 1st signal sequence with switch in the positive line:



Connection via a single-channel safety barrier
(e.g. STAHL Type 9001/01-280-085-101)

If a switch is used in the positive line or if the power supply is switched ON and OFF, a single-channel safety barrier will suffice.

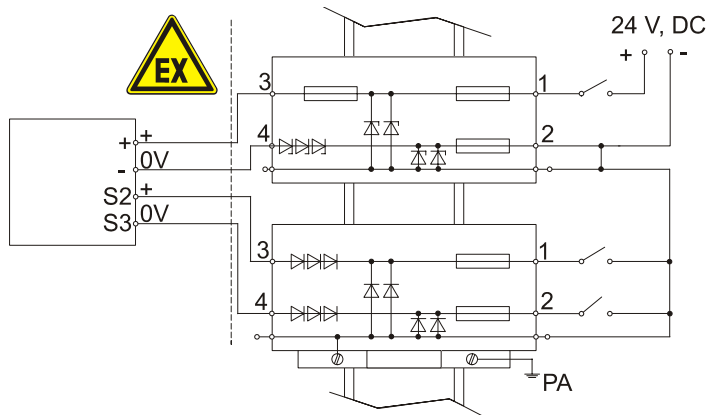
Circuit for the 1st signal sequence with switch in the negative line:



Connection via a two-channel safety barrier
(e.g. STAHL Type 9002/13-280-093-001)

If the switch in the negative line is used (e.g. PLC), a two-channel evaluation barrier with diodes in the return branch must be used.

Circuit for the 2nd and 3rd signal sequences



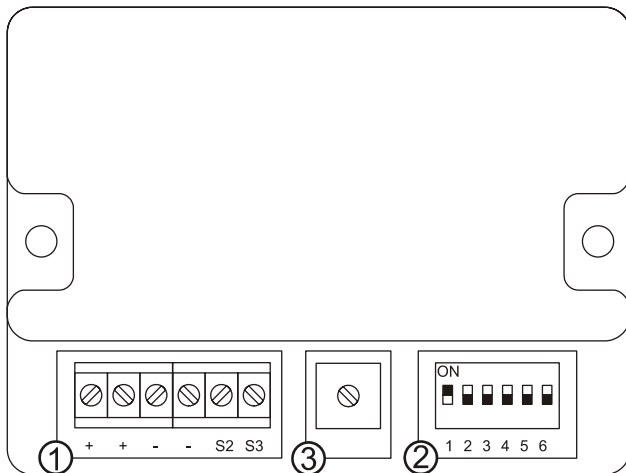
Circuit for the 2nd and 3rd signal sequences

(e.g. STAHL Types 9002/13-280-093-001 and 9002/33-280-000-001)

If terminal S2 of the horn is connected to the supply voltage (0 V) via the barrier terminals 3 and 1, the second signal sequence is activated.

Analogously, if terminal S3 of the horn is connected to the supply voltage (0 V) via the barrier terminals 4 and 2, the 3rd signal sequence is activated.


10 Commissioning



View of the operating controls


10.1 Cable terminal connections

- ▶ Insert the cable through the cable entry.
- ▶ Strip the insulation from the cables to a length of approx. 3 mm with a suitable tool.
- ▶ Insert the cables into the terminals (1), depending on circuit (see Chapter 9 "Installation") and secure them.
- ▶ Screw the cable entry tight.

	The terminal blocks "+" and "-" are provided twice.
---	---


10.2 Selection of the tone sequence

- ▶ Using a small screwdriver, arrange the settings of the DIP switches (2) 1-6. See Chapter 10.4 "Tone combination for horns" for a description of the tones.

	DIP switch "up" corresponds to "1" DIP switch "down" corresponds to "0"
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10.3 Setting the volume

- ▶ Use a small screwdriver to operate the volume control (3).

	Turning clockwise increases the volume.
---	---

10.4 Possible tone combinations for horns

Tone number	Frequency	Interval	DIP switches						Second tone	Third tone
			1	2	3	4	5	6		
Tone 1	340 Hz	Continuous	0	0	0	0	0	0	Tone 2	Tone 5
Tone 2	800/1000 Hz	Alternating at 0.25 s intervals	1	0	0	0	0	0	Tone 17	Tone 5
Tone 3	500/1200 Hz	Slow Whoop at 0.3 Hz with 0.5 s gap repeated	0	1	0	0	0	0	Tone 2	Tone 5
Tone 4	500/1000 Hz	Sweeping at 1 Hz	1	1	0	0	0	0	Tone 6	Tone 5
Tone 5	2400 Hz	Continuous	0	0	1	0	0	0	Tone 3	Tone 20
Tone 6	2400/2900 Hz	Sweeping at 7 Hz	1	0	1	0	0	0	Tone 7	Tone 5
Tone 7	2400/2900 Hz	Sweeping at 1 Hz	0	1	1	0	0	0	Tone 10	Tone 5
Tone 8	500/1200/500 Hz	Siren at 0.3 Hz	1	1	1	0	0	0	Tone 2	Tone 5
Tone 9	1200/500 Hz	Saw Tooth at 1 Hz - DIN	0	0	0	1	0	0	Tone 15	Tone 2
Tone 10	2400/2900 Hz	Alternating at 2 Hz	1	0	0	1	0	0	Tone 7	Tone 5
Tone 11	1000 Hz	Intermittent at 1 kHz	0	1	0	1	0	0	Tone 2	Tone 5
Tone 12	800/1000 Hz	Alternating at 0.875 Hz	1	1	0	1	0	0	Tone 4	Tone 5
Tone 13	2400 Hz	Intermittent at 1 Hz	0	0	1	1	0	0	Tone 15	Tone 5
Tone 14	800 Hz	Intermittent 0.25 s on; 1 s off	1	0	1	1	0	0	Tone 4	Tone 5
Tone 15	800 Hz	Continuous	0	1	1	1	0	0	Tone 2	Tone 5
Tone 16	660 Hz	Intermittent 0.15 s on; 0.15 s off	1	1	1	1	0	0	Tone 18	Tone 5
Tone 17	544/440 Hz	Alternating 100 ms/400 ms - NFS 32-001	0	0	0	0	1	0	Tone 2	Tone 27
Tone 18	660 Hz	Intermittent 1.8 s on; 1.8 s off	1	0	0	0	1	0	Tone 2	Tone 5
Tone 19	from 1400 Hz to 1600 Hz from 1600 Hz to 1400 Hz	in 1 s; in 0.5 s	0	1	0	0	1	0	Tone 2	Tone 5
Tone 20	660 Hz	Continuous	1	1	0	0	1	0	Tone 2	Tone 5
Tone 21	554/440 Hz	Alternating at 1 Hz	0	0	1	0	1	0	Tone 2	Tone 5
Tone 22	544 Hz	Intermittent at 0.875 Hz	1	0	1	0	1	0	Tone 2	Tone 5
Tone 23	800 Hz	Intermittent at 2 Hz	0	1	1	0	1	0	Tone 6	Tone 5
Tone 24	800/1000 Hz	Sweeping at 50 Hz	1	1	1	0	1	0	Tone 29	Tone 5
Tone 25	2400/2900 Hz	Sweeping at 50 Hz	0	0	0	1	1	0	Tone 29	Tone 5
Tone 26	Simulated Bell		1	0	0	1	1	0	Tone 2	Tone 15
Tone 27	554 Hz	Continuous	0	1	0	1	1	0	Tone 26	Tone 5
Tone 28	440 Hz	Continuous	1	1	0	1	1	0	Tone 2	Tone 5
Tone 29	800/1000 Hz	Sweeping at 7 Hz	0	0	1	1	1	0	Tone 7	Tone 5
Tone 30	300 Hz	Continuous	1	0	1	1	1	0	Tone 2	Tone 5
Tone 31	660/1200 Hz	Sweeping at 1 Hz	0	1	1	1	1	0	Tone 26	Tone 5
Tone 32	Two tone chime		1	1	1	1	1	0	Tone 26	Tone 15
Tone 33	745 Hz	Intermittent	0	0	0	0	0	1	Tone 2	Tone 5
Tone 34	1000/2000 Hz	Alternating at 0.5 s - Singapore	1	0	0	0	0	1	Tone 38	Tone 45
Tone 35	420 Hz	at 0.625 s - Australian alert	0	1	0	0	0	1	Tone 36	Tone 5
Tone 36	from 500 Hz to 1000 Hz	3.75 s/0.25 s - Australian evac.	1	1	0	0	0	1	Tone 35	Tone 5
Tone 37	1000 Hz	Continuous	0	0	1	0	0	1	Tone 9	Tone 45
Tone 38	2000 Hz	Continuous	1	0	1	0	0	1	Tone 34	Tone 45
Tone 39	800 Hz	Intermittent 0.25 s on; 1 s off	0	1	1	0	0	1	Tone 23	Tone 17
Tone 40	544/440 Hz	Alternating 100 ms/400 ms - NFS 32-001	1	1	1	0	0	1	Tone 31	Tone 27
Tone 41	Motor Siren	Slow Rise to 1200 Hz	0	0	0	1	0	1	Tone 2	Tone 5
Tone 42	Motor Siren	Slow Rise to 800 Hz	1	0	0	1	0	1	Tone 2	Tone 5
Tone 43	1200 Hz	Continuous	0	1	0	1	0	1	Tone 2	Tone 5
Tone 44	Motor Siren	Slow Rise to 2400 Hz	1	1	0	1	0	1	Tone 2	Tone 5
Tone 45	1000 Hz	Intermittent 1 s on; 1 s off	0	0	1	1	0	1	Tone 38	Tone 34
Tone 46	1200/500 Hz	Saw Tooth at 1 Hz - DIN / PFEER „Prepare to abandon platform“	1	0	1	1	0	1	Tone 47	Tone 37
Tone 47	1000 Hz	Intermittent 1 s on; 1 s off - PFEER General Alarm	0	1	1	1	0	1	Tone 46	Tone 37
Tone 48	420 Hz	at 0.625 s - Australian Alert	1	1	1	1	0	1	Tone 49	Tone 5
Tone 49	from 500 to 1200 Hz	3.75 s /0.25 s - Australian evacuate	0	0	0	0	1	1	Tone 26	Tone 37

11 Maintenance

! WARNING

Maintenance and repair work may be carried out only by specialist personnel!

- ▶ Maintenance and repair work on the devices may be carried out only by authorised, appropriately trained personnel.
- ▶ Observe applicable national regulations in the country of use.

Check the following within the framework of maintenance:

- ▶ Cables for firm attachment.
- ▶ Housing for visible damage.
- ▶ Compliance with the permitted temperatures in accordance with EN 50014.
- ▶ Function as intended.
- ▶ Regularly inspect the horn in order to ensure that it is in proper conditions in respect of installation, wiring and operation.

Please refer to the corresponding regulations (e.g. IEC/EN/DIN 60079-17) for the nature and scope of the tests and inspections. Plan the intervals so that any defects in the equipment which may be anticipated are promptly detected.

12 Type Examination Certificate



sira
Certification Service

1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: Sira 05ATEX2270X

4 Equipment: 8492/111 Sounder

5 Applicant: R. Stahl Schaltgeräte GmbH

6 Address: Am Bahnhof 30
D-74638 Waldenburg (Württ)
Germany

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report numbers R51A14156C and R52A14305A.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 50014: 1997 + A1 and A2


EN 50020: 2002

EN 50284: 1999

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

 II 1 G
EEx ia IIC T4 (-40°C ≤ T_a ≤ +60°C)

Project Number 52A14305
Date 24 October 2005
Latest issue 15 November 2005
C. Index 15

C Ellaby
Certification Officer



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ST&C(Chester) Form 9225 Issue 4

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Email: exhazard@sira.co.uk

Sira Certification Service is a service of Sira Test & Certification Ltd



SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 05ATEX2270X

Re-issued 15 November 2005 to introduce the changes described in report number R52A14305A.

13 DESCRIPTION OF EQUIPMENT

The 8492/111 Sounder is designed to provide an audible warning when activated. It consists of a printed circuit board assembly and an inductive sounder transducer; these are mounted in a IP 66, flame retardant, ABS enclosure. External connections are made to terminals mounted on the printed circuit board via a cable entry device mounted in the wall of the enclosure.

Terminals + w.r.t. Terminals -

$$U_i = 28 \text{ V} \quad I_i = 93 \text{ mA} \quad P_i = 660 \text{ mW} \quad C_i = 0 \quad L_i = 0$$

The equipment shall only be supplied from a barrier having a resistively limited current output.

Terminals S2 and S3 w.r.t. Terminal -

$$U_i = 28 \text{ V} \quad I_i = 0$$

14 DESCRIPTIVE DOCUMENTS

14.1 Drawing Sheet Rev. Date Title

D 4527 1 of 1 A 24 Oct 05 STAHL LABEL (ATEX) 8492/111 IS SOUNDER

14.2 Report numbers R51A14156C and R52A14305A

14.3 Certificate number Sira 04ATEX2301X last amended 15 November 2005.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

- 15.1 The equipment shall only be supplied via Terminals + w.r.t. Terminals - from a barrier having a maximum open circuit voltage U_o that is $\leq 28 \text{ V}$ and a maximum short circuit current I_o that is $\leq 93 \text{ mA}$, where I_o is resistively limited. The barrier shall be ATEX certified by a notified body.
- 15.2 The total capacitance connected to terminals + wrt - (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- 15.3 The equipment shall not be directly installed in any process where its enclosure might be statically charged by the rapid flow of a non-conductive media.
- 15.4 The equipment has an ingress protection rating of IP66; however, if it has been supplied without a cable entry device, then the user shall ensure that the device that is fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better.

Date 24 October 2005
Latest issue 15 November 2005

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 05ATEX2270X

- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**
The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in report numbers R51A14156C and R52A14305A.
- 17 **CONDITIONS OF CERTIFICATION**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 This product shall be uniquely marked with the label identified in section 14.1 of this certificate.

Date 24 October 2005
Latest issue 15 November 2005

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13 Declaration of Conformity

EG-Konformitätserklärung
 EC-Declaration Of Conformity
 CE-Déclaration De Conformité



SIRA 05 ATEX 2270 X

Wir (we; nous)

R. STAHL Schaltgeräte GmbH, Am Bahnhof 30, D-74638 Waldenburg (Württ.)

erklären in alleiniger Verantwortung, dass das Produkt	EEx i Hupe
hereby declare in our sole responsibility, that the product	Typ 8492/111
déclarons de notre seule responsabilité, que le produit	Intrinsically Safe Sounder
	Type 8492/111
	Klaxon EEx i
	Type 8492/111

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokumenten übereinstimmt
 which is the subject of this declaration, is in conformity with the following standard(s) or normative documents
 auquel cette déclaration se rapporte, est conforme aux norme (s) ou aux documents normatifs suivants

Bestimmungen der Richtlinie terms of the directive prescription de la directive	Titel und/oder Nr. sowie Ausgabedatum der Norm title and/or No. and date of issue of the standard titre et/ou No. ainsi que date d'émission des normes
94/9/EG: Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen 94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres 94/9/CE: Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles	EN 50014: 1997 + A1 + A2 EN 50020: 2002 EN 50284: 1999
89/336/EWG: Elektromagnetische Verträglichkeit 89/336/EEC: Electromagnetic compatibility 89/336/CEE: Compatibilité électromagnétique	

Waldenburg, <u>06.12.2005</u>	i.V.	i.V.
Ort und Datum Place and date Lieu et date	B. Limbacher Leiter Entwicklung Head of Development Directeur Développement	Dr. S. Jung Leiter Qualitätsmanagement Head of quality management dept. Chef du dept. assurance de qualité

TXV 03/99 Papier überfries

